

### **REMARKS**

Claims 1-22, 37 and 38 are rejected. Claims 1-38 are subject to restriction and/or election requirement. Claims 1, 3-7 and withdrawn claims 23, 25 and 26 have been amended. Claims 2, 24, and 37 have been canceled. Claims 1, 3-22 and 38 are presently pending in the application. Favorable reconsideration of the application in view of the following remarks is respectfully requested.

The basis for the amendments is found in claims 2 and 24 as originally filed.

#### **Rejection of Claim 38 under 35 USC § 112:**

The Examiner has rejected Claim 38 under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement, indicating that the claim contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Attached is the Product Information sheet from Rohm & Haas, which would indicate to one of ordinary skill in the art that Mocryl® 132 is anionic. In addition, review of Example 4 on pg. 17 of the specification indicates that the overcoat layer has a composition of a mixture of Z-210 acetoacetylated poly(vinyl alcohol) (Nippon Gohsei) and Mocryl ® 132 vinyl latex (Rohm and Haas) in a weight ratio of (75%/25%). Example 2 has a composition of a mixture of Z-210 acetoacetylated poly(vinyl alcohol) (Nippon Gohsei) and Witcobond ® UCX-244 polyurethane dispersion in a weight ratio of (75%/25%), specifically mentioned as the preferred anionic polyurethane on pg. 8, line 24 - pg. 9, line 2 of the specification. The specification also clearly discloses anionic polyurethane dispersions (pg. 7, line 4, pg. 8, lines 24-28 and pg. 17). The specification also discloses vinyl latex polymers (pg. 6, lines 3-5). One of ordinary skill in the art would easily conclude that the component used to replace the anionic urethane would naturally also be anionic, in this case, an anionic vinyl latex.

#### **Rejection of Claims 1-3, 9, 11, 12, 15, 21, 22 and 37 Under 35 U.S.C. §102(b):**

The Examiner has rejected Claims 1-3, 9, 11, 12, 15, 21, 22 and 37 are rejected under 35 U.S.C. 102(b) as described in the Office communication dated 9/28/2004. The Examiner indicates that the term "lamine adhesion promoting absorbing hydrophilic overcoat polymer latex" has no specific meaning

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in the art and is largely a series of functions assigned to the layer and, since the top layer of the reference would have each of these properties to some degree, the claimed layer reads on the top layer of the reference.

Kawano relates to an ink jet recording sheet comprising a substrate and an ink receptive layer disposed on said substrate, said ink receptive layer containing a pigment and a binder as its main components, the improvement comprising said ink receptive layer being an aqueous composition containing a pigment and an amphoteric latex as its main components, which absorbs water-base ink well, gives high-grade images, and ensures excellent water resistance of printed images. Kawano fails to disclose difficulties with laminate adhesion and fails to disclose the use of a laminate adhesion promoting overcoat layer containing derivatized poly(vinyl alcohol) having at least one hydroxyl group replaced by ether or ester groupings.

The present invention comprises an ink recording element comprising a support having a hydrophilic absorbing layer and a laminate adhesion promoting absorbing hydrophilic overcoat polymer layer containing derivatized poly(vinyl alcohol) having at least one hydroxyl group replaced by ether or ester groupings which provides better laminate adhesion than the elements of the prior art, while maintaining other properties such as excellent image quality, no banding, bleeding, coalescence, or cracking in inked areas, absorption of large amounts of ink, quick drying to avoid blocking, high optical densities in the printed areas, freedom from differential gloss and high levels of image fastness.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently, in a single prior art reference. The reference to Kawano fails to teach or suggest a laminate adhesion promoting overcoat layer. As a result, Kawano fails to anticipate the presently claimed invention.

In performing this examination, the Examiner has been correctly defining the phrase "laminate adhesion" as referring to the adhesion of a coating as part of a laminate. However, there are other aspects to laminate adhesion, as is illustrated by ASTM Test Method F2226-03, Section 4.6 and FIG.2 on pg. 2, provided as Attachment A. The term "laminate adhesion" also includes the adhesion of each layer within the multi-layer laminate to an adjacent layer and

adhesion of all the laminate layers together. The cited prior art contains a different term, that is, simple “adhesion”, which refers to the adhesion between a layer and the adjacent substrate. Simple adhesion is understood by those of ordinary skill in the art to refer to the relationship between the substrate and layers applied directly to the substrate. See ASTM Test Method D3359-02, especially the Appendix at X1.3.2., provided as Attachment B. The inventive element presently claimed has an adhesion promoting overcoat layer over inner layer(s). The use of this layer improves the adhesion of all the layers, both to adjacent layers and to the substrate. In laminate adhesion as presently used, the substrate is not in contact with the adhesion promoting overcoat layer. In the prior art, enhanced adhesion involves an adjacent layer. Therefore, the definitions of the terms “adhesion” and “laminate adhesion” are not synonymous and the reference cannot anticipate the present claims.

Further, the cited prior art indicates that the term “adhesion” is specific to the interaction between the substrate and the coated layer, as evidenced by Kawano, col. 1 line 65 – col. 2, line 2 (“If a synthetic paper or a plastic film is used as a substrate or a Latex is used as a binder, then the ink jet recording sheet will have the disadvantages that the adhesion between the ink receptive layer and the substrate is weak and ink is not dried or absorbed well.”), Kawano, col. 4 lines 47-50 (“The amphoteric latex used in the present invention displays its characteristic features as in the following when a synthetic resin material having a strong barrier property such as a plastic film and a synthetic paper is used as a substrate: The ink receptive layer matches the substrate better, and as a result strong adhesion is obtained.”), Kawano, col. 8 lines 9-12 (“Second, in said bottom layer, if the amount of the amphoteric latex is larger than the amount of the water-soluble high polymer, then the adhesion of the ink receptive layer to the substrate is increased.”), Kawano, col. 8 lines 31-35 (“If the amount of the amphoteric latex is below 40 parts by weight or smaller than the amount of the water-soluble high polymer, then the adhesion of the ink receptive layer to the substrate is unfavorably lowered.”), Kawano, col. 8, lines 44-48 (“In the bottom layer of the ink receptive layer, if the amount of the water-soluble high polymer is above 30 parts by weight per 100 parts by weight of pigment, then the adhesion of the ink receptive layer to the substrate is unfavorably lowered...”), Ueda, pg. 27, paragraph [0090] (“The layer provided on one or each side of the support may

contain a matting agent in an amount of 0.005 to 0.1 g/m<sup>2</sup> in order to minimize adhesion failure such as blocking.”), and Tomizawa, col. 4 lines 23-29 (“If desired in order to improve the adhesion between the substrate surface and the ink-receptive layer thereon, it is optional to subject the substrate surface to a treatment having a priming effect such as a corona discharge treatment, ozone treatment and plasma treatment as well as to a coating treatment to form an undercoating layer of a saturated polyester resin or urethane resin having a thickness in the range, for example, from 0.5 to 5  $\mu$ m.”)

**Rejection Of Claims 1-3, 7-15, 19-22 and 37 Under 35 U.S.C. §103(a):**

Claims 1-3, 7-15, 19-22 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawano et al. (5,478,631) for reasons of record and for reasons given below.

To establish a prima facie case of obviousness requires, first, there must be some suggestion or motivation, either in the references themselves, or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art references (or references when combines) must teach or suggest all the claim limitations. Kawano fails to teach, disclose or suggest a laminate adhesion promoting overcoat layer containing acetoacetylated poly(vinyl alcohol) which provides better laminate adhesion. Kawano also fails to mention the property of laminate adhesion. Therefore, the reference fails to provide any motivation to modify the reference to produce the laminate adhesion promoting overcoat layer containing acetoacetylated poly(vinyl alcohol) which provides better laminate adhesion as presently claimed. The reference also fails to provide any likelihood of obtaining improved laminate adhesion by using an acetoacetylated poly(vinyl alcohol) as presently claimed in an overcoat layer. One would not expect a layer to improve the adhesion properties of the whole coated laminate pack, especially regarding the adhesion of other layers to each other, which are not in contact with the overcoat layer. Finally, since the reference fails to mention laminate adhesion or the use of derivatized poly (vinyl alcohol) in an overcoat layer to improve laminate adhesion, the reference fails to teach, disclose or suggest the limitations of the invention as presently claimed.

Even assuming a prima facie case of obviousness has been made, the present invention provides surprising results. Kawano teaches the use of poly(vinyl alcohol) (col. 6, lines 1-15). The present invention, Example 1, which has an overcoat containing derivatized PVA demonstrates excellent laminate adhesion (Table 2, page 18) as compared to Example 5, having an overcoat layer containing non-derivatized PVA, as well as Example 6, having an overcoat containing PVA and polyethyleneoxide copolymer.

The Examiner has indicated concern with the Examples, indicating that the examples do not vary only the polyvinyl alcohol, as, in each of examples 1-4, the derivatized polyvinyl alcohol is used along with another material. However, Examples 1 and Control Example 5 are identical, except for the variation in poly(vinyl alcohol), derivatized vs. non-derivatized.

Example 1, as copied from the as-filed specification states:

“A polyethylene resin coated paper was treated by corona discharge and coated by means of an extrusion/slide hopper with a 10% gelatin solution in water, (succinylated pigskin gelatin, Kind & Knox Gelatine Co.), and 0.6% 12 micron polystyrene beads, dry coverage of about 8.5 microns and an inner layer of 5% solution of Elvanol ® 52-22 poly(vinyl alcohol) (DuPont) and a 30% dispersion of Witcobond ® 232 polyurethane (Witco Corp), where the poly(vinyl alcohol) (PVA) and polyurethane dispersion (PUD) were mixed in a 77:23 ratio by weight at a dry coverage of 1.5 microns. An overcoat layer consisting of a 2% solution of Z-320 acetoacetylated poly(vinyl alcohol) (Nippon Gohsei) and APG 325N (Cognis) and Surfactant 10G (Arch Chemical) surfactants in a ratio by weight of 96.9/2.4/0.7 was coated over the gelatin and poly(vinyl alcohol)/polyurethane layers at a dry coverage of 1 micron. The coatings were dried thoroughly by forced air heat after application of the coating solutions.”

Control Example 1, copied from the as-filed specification states:

As in example 1 except that the overcoat layer consisted of hydroxyethyl cellulose (HEC QP 300, Dow).

Using the exact terms of Example 1, Control Example 1 would appear as follows:

“A polyethylene resin coated paper was treated by corona discharge and coated by means of an extrusion/slide hopper with a

10% gelatin solution in water, (succinylated pigskin gelatin, Kind & Knox Gelatine Co.), and 0.6% 12 micron polystyrene beads, dry coverage of about 8.5 microns and an inner layer of 5% solution of Elvanol ® 52-22 poly(vinyl alcohol) (DuPont) and a 30% dispersion of Witcobond ® 232 polyurethane (Witco Corp), where the poly(vinyl alcohol) (PVA) and polyurethane dispersion (PUD) were mixed in a 77:23 ratio by weight at a dry coverage of 1.5 microns. An overcoat layer consisting of a 2% solution of hydroxyethyl cellulose (HEC QP 300, Dow) and APG 325N (Cognis) and Surfactant 10G (Arch Chemical) surfactants in a ratio by weight of 96.9/2.4/0.7 was coated over the gelatin and poly(vinyl alcohol)/polyurethane layers at a dry coverage of 1 micron. The coatings were dried thoroughly by forced air heat after application of the coating solutions.”

Control Example 5, copied from the as-filed specification states:

As in control example 1 except that the overcoat layer consisted of a non-acetoacetylated poly(vinyl alcohol) (GH-23, Nippon Gohsei).

Using the exact terms of Example 1 and Control Example 1, Example 5 would appear as follows:

“A polyethylene resin coated paper was treated by corona discharge and coated by means of an extrusion/slide hopper with a 10% gelatin solution in water, (succinylated pigskin gelatin, Kind & Knox Gelatine Co.), and 0.6% 12 micron polystyrene beads, dry coverage of about 8.5 microns and an inner layer of 5% solution of Elvanol ® 52-22 poly(vinyl alcohol) (DuPont) and a 30% dispersion of Witcobond ® 232 polyurethane (Witco Corp), where the poly(vinyl alcohol) (PVA) and polyurethane dispersion (PUD) were mixed in a 77:23 ratio by weight at a dry coverage of 1.5 microns. An overcoat layer consisting of a 2% solution of As in control example 1 except that the overcoat layer consisted of a non-acetoacetylated poly(vinyl alcohol) (GH-23, Nippon Gohsei) and APG 325N (Cognis) and Surfactant 10G (Arch Chemical) surfactants in a ratio by weight of 96.9/2.4/0.7 was coated over the gelatin and poly(vinyl alcohol)/polyurethane layers at a dry coverage of 1 micron. The coatings were dried thoroughly by forced air heat after application of the coating solutions.”

Copies of the original laboratory notebook pages relating to the samples as well as an experiment duplicating the original experiments have been included in a previous office action. In addition, Examples 5-8 and Control Examples 7-12 illustrate that the surfactants utilized in the overcoat layer do not affect laminate adhesion, only coatability of the laminate.

The Examiner indicates that, while Kawano et al. does not refer to any layer in this manner, the term "laminate adhesion promoting absorbing hydrophilic" is merely a list of properties that are attributed to the overcoat layer in the instant claims and the top layer of Kawano et al. will possess these properties to some degree because the layers adhere in a laminate, are hydrophilic, are made of polymers and provide an overcoat. As discussed above, laminate adhesion relates to more than just the overcoat layer itself. The overcoat layer promotes the adhesion to the adjacent layer, but applies to enhancing the adhesion of all the layers in the laminate – to each adjacent layer, to non-adjacent layers, as well as the whole laminate to the substrate. Kawano makes no disclosure that would lead one of ordinary skill in the art to expect a distant, non-adjacent layer to improve the adhesion of the whole structure.

Therefore, since the reference fails to provide any suggestion or motivation to modify the reference, fails to provide a reasonable expectation of success, fails to teach or suggest all the claim limitations, and in the light of surprising results, the Applicants respectfully request the Examiner to reconsider and withdraw the rejection.

**Rejection Of Claims 1, 2, 4-6 and 37 Under 35 U.S.C. §103(a):**

Claims 1, 2, 4-6 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawano et al. as applied to claims 1-3, 7-15 and 19-22 above, and further in view of Tomizawa et al. (6,224,971) for reasons of record and for reasons given below.

Tomizawa discloses novel ink-jet recording sheets having high water resistance, excellent transparency of the ink-receptive layer, ink absorptivity and color developability as well as the advantages of absence of surface tackiness and blocking and a liquid coating composition for forming the ink-receptive coating layer of the recording sheet. The liquid coating composition comprises, as a uniform blend in an aqueous medium, an acetoacetylated polyvinyl alcohol, a polyvinylpyrrolidone resin, and an acidic aqueous dispersion

of a colloidal silica, each in a specified weight proportion. Tomizawa fails to disclose laminate adhesion or the use of a laminate adhesion promoting overcoat layer containing acetoacetylated poly(vinyl alcohol). Tomizawa deals with a single coated layer on a substrate, which would suffer from adhesion failure, but not laminate adhesion failure due to the absence of a multiple layer laminate.

To establish a prima facie case of obviousness requires, first, there must be some suggestion or motivation, either in the references themselves, or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art references (or references when combines) must teach or suggest all the claim limitations. Kawano and Tomizawa fail to teach, disclose or suggest a laminate adhesion promoting absorbing hydrophilic overcoat polymer layer containing derivatized poly(vinyl alcohol) having at least one hydroxyl group replaced by ether or ester groupings which provides better laminate adhesion. Tomizawa and Kawano also fail to mention the property of laminate adhesion. In fact, Tomizawa fails to disclose a laminate structure, disclosing instead a single coated layer on a substrate. Therefore, the references fail to provide any motivation to modify the reference to produce the laminate adhesion promoting absorbing hydrophilic overcoat polymer layer containing acetoacetylated poly(vinyl alcohol) which provides better laminate adhesion as presently claimed. The Examiner notes that it would have been obvious to one of ordinary skill in the art to determine the particular polyvinyl alcohol, specifically acetoacetylated poly(vinyl alcohol), from the commercially available series of polymers identified by the prior art as useful in ink jet recording media applications in order to achieve the goals set forth by the primary reference. However, Kawano fails to teach the goal of improved laminate adhesion. The references also fail to provide any likelihood of obtaining improved laminate adhesion by using a derivatized poly (vinyl alcohol) as presently claimed. Finally, since the references fail to mention laminate adhesion or the use of acetoacetylated poly(vinyl alcohol) in an overcoat layer to improve laminate adhesion, the reference fails to teach, disclose or suggest the limitations of the invention as presently claimed.

Also, as discussed above, the present invention provides evidence of surprising results. As discussed above, laminate adhesion relates to more than



just the overcoat layer itself. The overcoat layer promotes the adhesion to the adjacent layer, but applies to enhancing the adhesion of all the layers in the laminate – to each adjacent layer, to non-adjacent layers, as well as the whole laminate to the substrate. One would not expect a layer to improve the adhesion properties of the whole coated laminate pack, especially regarding the adhesion of other layers to each other, which are not in contact with the overcoat layer. Kawano makes no disclosure that would lead one of ordinary skill in the art to expect a distant, non-adjacent layer to improve the adhesion of the whole structure and Tomizawa deals with only a single layer.

Therefore, since the references fail to suggest or motivate one to modify or combine the references, fail to provide a reasonable expectation of success, fail to teach or suggest all the claim limitations, and in the light of surprising results, the Applicants respectfully request the Examiner to reconsider and withdraw the rejection.

**Rejection Of Claims 1 and 15-18 Under 35 U.S.C. §103(a):**

Claims 1 and 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawano et al. as applied to claims 1-3, 7-15, 19-22 above, and further in view of Ueda et al. (EP 791,475) for reasons of record and for reasons given below.

Ueda discloses a recording sheet for ink-jet recording, which comprises a support, and provided thereon, an ink receiving layer, wherein the ink receiving layer contains a water soluble polymer, a polymer latex and gelatin, to provide an excellent image under various conditions and an excellent transportability. Ueda fails to disclose laminate adhesion as a problem, and fails to disclose the use of acetoacetylated poly(vinyl alcohol).

To establish a prima facie case of obviousness requires, first, there must be some suggestion or motivation, either in the references themselves, or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art references (or references when combines) must teach or suggest all the claim limitations. Kawano and Ueda fail to teach, disclose or suggest a laminate adhesion promoting absorbing hydrophilic overcoat polymer layer containing acetoacetylated poly(vinyl alcohol) which provides better laminate adhesion. Ueda and Kawano also fail to mention the

property of laminate adhesion. Therefore, the references fail to provide any motivation to modify the reference to produce the laminate adhesion promoting absorbing hydrophilic overcoat polymer layer containing acetoacetylated poly(vinyl alcohol) which provides better laminate adhesion as presently claimed. The references also fail to provide any likelihood of obtaining improved laminate adhesion by using acetoacetylated poly(vinyl alcohol) as presently claimed. Finally, since the references fail to mention laminate adhesion or the use of acetoacetylated poly(vinyl alcohol) in an overcoat layer to improve laminate adhesion, the reference fails to teach, disclose or suggest the limitations of the invention as presently claimed.

Also, as discussed above, the present invention provides evidence of surprising results. As discussed above, laminate adhesion relates to more than just the overcoat layer itself. The overcoat layer promotes the adhesion to the adjacent layer, but applies to enhancing the adhesion of all the layers in the laminate – to each adjacent layer, to non-adjacent layers, as well as the whole laminate to the substrate. One would not expect a layer to improve the adhesion properties of the whole coated laminate pack, especially regarding the adhesion of other layers to each other, which are not in contact with the overcoat layer. Kawano makes no disclosure that would lead one of ordinary skill in the art to expect a distant, non-adjacent layer to improve the adhesion of the whole structure and Tomizawa deals with only a single layer.

Therefore, since the references fail to suggest or motivate one to modify or combine the references, fail to provide a reasonable expectation of success, fail to teach or suggest all the claim limitations, and in the light of surprising results, the Applicants respectfully request the Examiner to reconsider and withdraw the rejection.

**Rejection Of Claims 1, 2, 7, 8, 21, 22 and 37 Under 35 U.S.C. §102(e):**

Claims 1, 2, 7, 8, 21, 22 and 37 are rejected under 35 U.S.C. 102(e) as being anticipated by Niu et al. (6,599,593) for reasons of record and for reasons given below.

To establish a prima facie case of obviousness requires, first, there must be some suggestion or motivation, either in the references themselves, or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable

expectation of success. Finally, the prior art references (or references when combines) must teach or suggest all the claim limitations. Niu fails to teach, disclose or suggest a laminate adhesion promoting overcoat layer containing acetoacetylated poly(vinyl alcohol) which provides better laminate adhesion. Niu also fails to mention the property of laminate adhesion. Therefore, the reference fails to provide any motivation to modify the reference to produce the laminate adhesion promoting overcoat layer containing acetoacetylated poly(vinyl alcohol) which provides better laminate adhesion as presently claimed. The reference also fails to provide any likelihood of obtaining improved laminate adhesion by using acetoacetylated poly(vinyl alcohol) as presently claimed in an overcoat layer. One would not expect a layer to improve the adhesion properties of the whole coated laminate pack, especially regarding the adhesion of other layers to each other, which are not in contact with the overcoat layer. In addition, Niu indicates that secondary binders other than derivatized PVA and polyurethane may be used. At least one of these other secondary binders, carboxycellulose, has been utilized as Control Example 4, over which the presently claimed composition demonstrates surprisingly approved adhesion. At best, Niu provides a list of materials that would be obvious to try, some of which have been found to not promote laminate adhesion. Finally, since the reference fails to mention laminate adhesion or the use of acetoacetylated poly(vinyl alcohol) in an overcoat layer to improve laminate adhesion, the reference fails to teach, disclose or suggest the limitations of the invention as presently claimed.

**Rejection Of Claims 1, 2, 9-14, 19-22, 37 and 38 Under 35 U.S.C. §103(a):**

Claims 1, 2, 9-14, 19-22, 37 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Niu et al. (6,599,593) for reasons of record and for reasons given below.

To establish a prima facie case of obviousness requires, first, there must be some suggestion or motivation, either in the references themselves, or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art references (or references when combines) must teach or suggest all the claim limitations. Niu fails to teach, disclose or suggest a laminate adhesion promoting overcoat layer containing acetoacetylated poly(vinyl alcohol) which provides better laminate adhesion. Niu

also fails to mention the property of laminate adhesion. Therefore, the reference fails to provide any motivation to modify the reference to produce the laminate adhesion promoting overcoat layer containing acetoacetylated poly(vinyl alcohol) which provides better laminate adhesion as presently claimed. The reference also fails to provide any likelihood of obtaining improved laminate adhesion by using acetoacetylated poly(vinyl alcohol) as presently claimed in an overcoat layer. One would not expect a layer to improve the adhesion properties of the whole coated laminate pack, especially regarding the adhesion of other layers to each other, which are not in contact with the overcoat layer. In addition, Niu indicates that secondary binders other than derivatized PVA and polyurethane may be used. At least one of these other secondary binders, carboxycellulose, has been utilized as Control Example 4, over which the presently claimed composition demonstrates surprisingly approved adhesion. At best, Niu provides a list of materials that would be obvious to try, some of which have been found to not promote laminate adhesion. Finally, since the reference fails to mention laminate adhesion or the use of acetoacetylated poly(vinyl alcohol) in an overcoat layer to improve laminate adhesion, the reference fails to teach, disclose or suggest the limitations of the invention as presently claimed.

**Rejection Of Claim 38 Under 35 U.S.C. §103(a):**

Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Niu et al. (6,599,593) and further in view of applicants' admission of pages 8-9 of the specification for reasons of record and for reasons given below.

To establish a prima facie case of obviousness requires, first, there must be some suggestion or motivation, either in the references themselves, or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art references (or references when combines) must teach or suggest all the claim limitations. Niu fails to teach, disclose or suggest a laminate adhesion promoting overcoat layer containing acetoacetylated poly(vinyl alcohol) which provides better laminate adhesion. Niu also fails to mention the property of laminate adhesion. Therefore, the reference fails to provide any motivation to modify the reference to produce the laminate adhesion promoting overcoat layer containing acetoacetylated poly(vinyl alcohol) which provides better laminate adhesion as presently claimed. The reference also

fails to provide any likelihood of obtaining improved laminate adhesion by using acetoacetylated poly(vinyl alcohol) as presently claimed in an overcoat layer. One would not expect a layer to improve the adhesion properties of the whole coated laminate pack, especially regarding the adhesion of other layers to each other, which are not in contact with the overcoat layer. In addition, Niu indicates that secondary binders other than derivatized PVA and polyurethane may be used. At least one of these other secondary binders, carboxycellulose, has been utilized as Control Example 4, over which the presently claimed composition demonstrates surprisingly approved adhesion. At best, Niu provides a list of materials that would be obvious to try, some of which have been found to not promote laminate adhesion. Finally, since the reference fails to mention laminate adhesion or the use of acetoacetylated poly(vinyl alcohol) in an overcoat layer to improve laminate adhesion, the reference fails to teach, disclose or suggest the limitations of the invention as presently claimed.

**Rejection Of Claims 1, 2 and 4-6 Under 35 U.S.C. §103(a):**

Claims 1, 2 and 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Niu et al. (6,599,593) as applied to claims 1, 2, 7-14, 19-22, 37 and 38 above, and further in view of Tomizawa et al. (6,224,971) for reasons of record and for reasons given below.

As discussed above, the Applicants believe that the present invention is not obvious in light of either the reference to Niu or Tomizawa. The motivation to combine references must come from statements in the prior art, the knowledge of one of ordinary skill in the art or from the nature of the problem to be solved. In re Kotzab, 217 F.3d 1365, 1370 (Fed Cir. 2000). Niu fails to mention laminate adhesion, providing no motivation to look elsewhere. The goals set out in Niu do not include improving laminate adhesion. Tomizawa deals with a single layer coating applied to a substrate and fails to teach anything relating to laminate adhesion.

**Rejection Of Claims 1 and 15-18 Under 35 U.S.C. §103(a):**

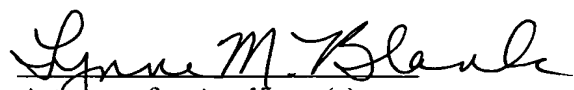
Claims 1 and 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Niu et al. (6,599,593) as applied to claims 1, 2, 7-14, 19-22, 37 and 38 above, and further in view of Ueda et al. (EP 791,475). As with the polyvinyl alcohol, the primary reference is also silent with respect to particular gelatin that may be used. Therefore, Ueda et al. is cited for teaching of gelatin

that is used in the ink jet recording art (see page 3). The secondary reference teaches that gelatins may be pigskin, cow skin, or cow bone, and may be lime-processed, acid processed, or gelatin derivatives. Based upon this teaching it would have been obvious to one of ordinary skill in the art to use a gelatin previously taught for use in ink jet recording media as the gelatin of the primary reference.

As discussed above, the Applicants believe that the present invention is not obvious in light of either the reference to Niu or Ueda. The combination of Niu and Ueda would fail to produce the presently claimed acetoacetylated poly(vinyl alcohol) used in an overcoat layer to improve laminate adhesion. At best, Niu provides a list of materials that would be obvious to try in an overcoat layer, some of which have been found to not promote laminate adhesion in combination with a gelatinous layer. Neither Niu nor Ueda disclose laminate adhesion. Finally, since the references fail to mention laminate adhesion or the use of acetoacetylated poly(vinyl alcohol) in an overcoat layer to improve laminate adhesion, the references fail to teach, disclose or suggest the limitations of the invention as presently claimed.

Applicants respectfully request that this amendment be admitted in order to present the rejected claims in better form for consideration on appeal.

Respectfully submitted,

  
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If the Examiner is unable to reach the Applicant(s) Attorney at the telephone number provided, the Examiner is requested to communicate with Eastman Kodak Company Patent Operations at (585) 477-4656.



## DESCRIPTION

Morcryl 132 and Morcryl 134 are two solution versions of Morez 101, a mid range molecular weight, solid grade, styrene/acrylic resin. Morcryl 132 is an economical, alcohol-free version while Morcryl 134 is a higher solids alternative. Both of these ammonia solubilized products offer excellent pigment wetting characteristics as a grinding vehicle and can function as a gloss, block and rheological modifier.

## CHARACTERISTICS

- Ready to use solution
- Excellent pigment wetting
- Good viscosity stability in high pigment load bases
- Excellent rheological modifier for water-based inks and overprints
- Excellent hold-out and printability with good rewet
- Excellent block modifier
- Can be cross-linked with zinc or zirconium
- Low odor

## COMPATIBILITY WITH OTHER POLYMERS

Morcryl 132 and 134 are compatible with the standard styrene/acrylics that are used in the graphic arts industry.

## Typical Properties

	Morcryl 132	Morcryl 134
Appearance	Clear to slight yellow solution	Clear to slight yellow solution
Solids, %	32	34
pH	7.9 - 8.9	8.0 - 9.0
Viscosity, cP	1500	2000
Tg, °C	100	100
Acid number	205	205
Molecular weight	6500	6500
Flash point, °F	> 200	110
Freeze/thaw stability	Yes	Yes
VOC, %	1.3	5.4

## Composition

	132	134
Morez 101	32.0	34.0
Water	62.0	53.0
Ammonia	6.0	8.0
Isopropanol		5.0

## Solvent Compatibility with Morcryl 134

Solvent	% Addition of Solvent		
	10%	20%	30%
Isopropanol	24" - 3Z	29" - 2Z	21" - 2Z
Ethanol	27" - 3Z	29" - 2Z	20" - 2Z
n-Propanol	20" - 3Z	27" - 2Z	20" - 2Z
Ethyl Acetate	18" - 3Z	38" - 2Z	27" - 2Z
MEK	16" - 3Z	26" - 2Z	22" - 2Z
Propylene Glycol	44" - 3Z	19" - 3Z	40" - 2Z
Ektasolve DB	28" - 3Z	42" - 2Z	30" - 2Z

## TYPICAL STARTING POINT FORMULATION

Attachment - pg. 2 of 2  
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## Application: Base Grinds with Morcryn 132 and Morcryn 134

	A	A1	B	B1	C	C1	D	D1	E	E1
	Yellow		Yellow		Blue		Blue		Black	
Presscake*	35.0	35.0	30.0	30.0	35.0	35.0	40.0	40.0	25.0	25.0
Morcryn 132	39.0	-	40.0	-	22.0	-	35.0	-	39.5	-
Morcryn 134	-	36.7	-	37.6	-	20.7	-	32.9	-	36.7
Water	25.5	27.8	29.5	31.9	42.5	43.8	24.5	26.6	35.0	37.8
Defoamer	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Pigment/Binder ratio	2.8/1	2.8/1	2.3/1	2.3/1	5/1	5/1	3.6/1	3.6/1	2/1	2/1

## \*Presscake Pigments

- A - Diarylide 274-1744 (Sun)
- B - AAOT 1270 (Hercules)
- C - Sunfast Blue 249-1282 (Sun)
- D - Sunbrite Red 210 235-0552 (Sun)
- E - Eltex 8 (Cabot), Panther 39 (Huber), Raven 1060 (Columbian)

## Application: Overprint Formulation for Water, Grease Resistance

Lucidene® 602	37.0
Lucidene 605	28.0
Morcryn 132	20.0
Luciwax 37	5.0
15% Zinc Oxide Solution <sup>1</sup>	2.0
Water	8.0
Total	100.0
Viscosity, #2 Zahn cup, sec.	32

## Application: Overprint Formulation for Wet Offset

Premix:	
Water	5.0
Luciwax® 37	3.0
Add with Stirring in Order:	
Morcryn 132	25.0
Lucidene 374	63.5
Aerosol OT-75 <sup>2</sup>	3.5
Total	100.0
Viscosity, #3 Zahn cup, sec.	25

<sup>2</sup>Cytec Industries

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